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SUBJECT Hydrological Description of Southeastern Kara-Kums

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study entitled "Hydrological Description of the Southeastern Kara-Kums," by V M K unin, published by the Academy of Science of the USSR, Council to study natural resources, Turkmenistan series, Vol 8, 1934.

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V.N. KUNIN

Hydrological Description of South-Eas
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Academy of Sciences of U SSR. Counci
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No.8, 1 9 3 4 .)

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The hypsometry of the South-Eastern Kara-Kums
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r.r. has 177.9 m (there are absolute
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r.r. has 177.9 m (these are absolute marks over th
level).

The most ancient rocks of this region are
the Neogenic Tertiary deposits represented mainly by
colored sandstones, solid clays and conglomerates.
quite a number of the upper horizons are very varie
(Neogene) outcrops. The nonadenous Neogene
were found near Uch-adzhi sta
of it near Chim-chakly, Ne
Besides these places, the Neo
border between Bossag
little away from Amu-Daria.

*rocks

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Zeid region is probably composed of the same [illegible] on the territory of the south-eastern Kara-Kums [illegible] deposits lie horizontally or with a slight inclination [illegible]

All the rest of the S.E. Kara-Kums area is [illegible] with a coat of friable deposits of the quaternary [illegible]

These diverse friable deposits generally [illegible] underground waters.

According to their origin we divide the deposits [illegible] three groups:

I. [illegible] Alluvial deposits of Amu-Darya

II. Aeolian Alluvial deposits of Murgab r.

III. Proluvial deposits of the inclined plains.

[illegible] Alluvial deposits of Amu-Darya [illegible] the present Amu-Darya [illegible] of the South-Western Kara-Kums; they are [illegible] the eastern [illegible] Afghanistan territory. [illegible] central; north-western part is Amu-Darya [illegible] partly along Kizil'-Zalan r.r. [illegible] along the line: Alty-Aryk-Yerli-Yer [illegible] Kyzyl-Kel'mes [illegible].

[illegible]-Neo-geological characteristic.

[illegible] geological conditions of the above [illegible] described only in very general terms.

[illegible] territory has a full parallel to that [illegible] Amu-Darya [illegible] Kunya-Urgench [illegible] for about [illegible] km. [illegible] direction from SW to NE this territory [illegible]

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a slight fall from Amu-daria toward west; so the general inclinations of the land is WNW.

The most ancient rocks that were found on this [illegible] are variegated deposits of the Neogene; they are represented mainly by red sandstones. This bed [illegible] right bank of Amu-daria forming a slightly elevated plateau. Within the Karki region and higher up the river the Cretaceous limestones are found under this variegated bed. Here this complex of deposits has a disturbed position. No dislocations were found down the river below Karki.

On the left bank of the Amu-daria river the outcrops of the variegated Neogene deposits are not very seldom. They appear as plateau-like hills rising over the levelled surface of Kara-kum. Generally they are elongated parallel to the river, being 2-3 km long and about 0.5 km wide. They are covered by quite considerably thick Aeolian sand forms.

All the rest of the triangle area is composed of Quaternary alluvial, mainly sandy deposits, the upper horizons of which bear young aeolian shapes [illegible] blowing sands. Depressions are [illegible] with vegetation. The [illegible] sections [illegible] the [illegible] ancient-alluvial Amu-daria deposits. [illegible] started at the bottom of shor, 1 km [illegible] of 1033 km station of the [illegible] r.r. (but [illegible] other stations) showed

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1.) 0.00-3.00 m - grey sand
2.) 3.00-4.00 " - dirty yellow, fine sand
3.) 4.00-5.18 " - grey-yellow sand
4.) 5.18-7.56 " - grey, coarse sand
5.) 7.56-7.60 " - dark grey clay
6.) 7.60-9.40 " - grey, coarse sand
7.) 9.40-12.00" - grey-yellow fine sand
8.) 12.00-13.50" - grey, coarse sand
9.) 13.50-13.55" - grey clay
10.) 13.55-14.30" - grey, fine sand
11.) 14.30-16.00" - grey, coarse sand
12.) 16.00-16.10" - grey clay with pebbles
13.) 16.10-18.50" - grey, coarse sand
14.) 18.50-18.60" - clay with pebbles
15.) 18.60- " - grey sand.

The water-bed was met at 0.55 m.

This well, placed approximately in the middle of the northwestern side of the triangle, shows that the ancient alluvial Amu-daria deposits consist fundamentally of different kinds of grey sands. Of second importance are the more loamy-clayey yellow fine sands.

On the northern corner of the region there were made deeper drillings (during the construction of the Charjuiskii bridge across Amu-daria). Here is one section:

1.) 0.00-1.20 m - clayey soil of chocolate color
2.) 1.20-1.60 " - fine sand loam
3.) 1.60-16.00" - grey sand
4.)16.00-25.20" - light grey sand
5.)25.20-28.00" - light yellow clay
6.)28.00-38.52" - yellow sandstone.
(beds 1-4 alluvium; 5-6 Neogene).

This hole being situated close to the river shows a similarity of the ancient Amu-daria alluvium with the recent one.

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The above given section shows that the recent Amu-
in the Chardzhui region lie over the fundamental T

Near Dengli-shor (approximately in the mid
southern triangle line) the following section is n

1.) 0.00-0.70 m - solid, reddish clay
2.) 0.70-3.10 " - grey, containing mica,
3.) 3.10-3.20 " - dirty-yellow sand
4.) 3.20-3.55 " - grey, half-coarse and f
slantingly laminated
5.) 3.55-3.70 " - grey coarse sand
6.) 3.70-4.70 " - grey-yello sand, lami
7.) 4.70-5.50 " - grey, slantingly lamin
8.) 5.50-5.65 " - sphere-like, solid clay
9.) 5.65 " - grey

As we see, the section is not much differe
the others.

The Holes sl
S.W. side of the tri
only difference th
river polished pebbles. Contrary
mental rocks were found on the
bank, however, they
following rocks
lie on the fundamental rocks (Cr
distance from the b
increases while the
down deeper and deeper under the contemporary bed
daria.

Summing up all the material, we may give the
short geomorphological and geological characteris
region.

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[illegible] whole [illegible] is composed of ancient alluvial deposits of Amu-Daria. The deposits are represented by [illegible] of different sands and by a small quantity of clay [illegible] ations of loess-like character. Along NE boundary of the region the grey alluvial Kara-Kum bed lie over the tertiary variegated deposits; higher up (above Kerki) it lies over the Cretaceous (?) limestones. We have some indications about tertiary [illegible] rocks in Tol-Kuyu region. These rocks disappear further on until [illegible] Dengli-[illegible] and [illegible] this region up to Alikadym they occasionally appear again.

<u>Ancient-Alluvial Deposits of [illegible] River.</u>

The [illegible] of [illegible] also the red colored [illegible], [illegible] of [illegible]. [illegible] river. The [illegible] in [illegible] in [illegible] about [illegible]. [illegible] also [illegible] [illegible] near [illegible].

1.) [illegible] - [illegible], soil
2.) [illegible] - [illegible]
3.) [illegible] - [illegible]
4.) [illegible] - [illegible]
5.) [illegible] - [illegible] soil
6.) [illegible] -11.[illegible] - [illegible]
7.) 11.[illegible]-12.[illegible] - [illegible] gypsum
8.) 1[illegible]-1[illegible] - [illegible]
9.) 1[illegible]-15.[illegible]m - [illegible], [illegible]
10.) 15.[illegible]0-17.43m - clayey soil
11.) 17.43-21.50m - [illegible]
12.) 21.50-[illegible] - [illegible] sand [illegible]
13.) 22.[illegible]0-2[illegible] - sand.

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The whole region is composed of ancient alluvial deposits of Amu-Darya. The deposits are represented by a series of different sands and by a small quantity of clayey formations of lenso-like character. Along the boundary of the Kyzyl-Kum the grey alluvial Kara-Kum bed lie over the tertiary deposits; higher up (above Kerki) it lies over the Neogene (?) limestones. To have some indications about the Neogene fundamental rocks in Iol-kuyu region. These rocks disappear further on until we reach Bongli-shor and from this region up to Alibaba they occasionally appear again.

Ancient-Alluvial deposits of Amu-Darya River.

The fundamental rocks in the lower part of the section also the red colored neogene bed, composed mainly of [illegible]. Its outcrops are detected along the left bank of the river, the thickness of which in the limits of the section is about 100 m. The thickness of the red colored neogene is also not less than 100 m. The following is a section near Turbanabad station.

1.) 0.00-[illegible] m - fine sand loam, grey, [illegible]
2.) 0.30-[illegible] m - fine sand
3.) [illegible]-[illegible] m - clayey soil
4.) [illegible]-[illegible] m - fine sand
5.) [illegible]-[illegible] m - clay soil
6.) [illegible]-11.42m - fine sand
7.) 11.42-12.[illegible]m - fine sand loam with gypsum
8.) 12.[illegible]-13.53m - sand
9.) 13.53-15.60m - fine sand loam, solid
10.) 15.60-17.43m - clayey soil
11.) 17.43-21.50m - sand
12.) 21.50-22.50 - fine sand loam
13.) 22.50-24.[illegible] m - sand.

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Proluvial Inclined Plain

This region is divided into two: sandy-clayey [illegible] and the subregion of sands.

The sandy-clayey plain is very different in facial structure from the region of ancient alluvial [illegible]. Here we have almost absolute absence of barkhan and [illegible]. Here is a typical section near Peteli place.

1.) 0.00 - 2.40 m - aeolian sand
2.) 2.40 - 2.60 m - sand with gypsum
3.) 2.60 - 4.25 m - loess-like loams
4.) 4.25 - 5.19 m - brown clay with gypsum
5.) 5.19 - 6.36 m - grey-yellow fine sandy loam
6.) 6.36 - 6.56 m - brown clayey soil
7.) 6.56 - 7.33 m - brown clay with gypsum
8.) 7.33 - 8.10 m - loess-like loams of grey [illegible]
9.) 8.10 - 8.62 m - brown clay
10.) 8.62 - 9.59 m - grey, brown fine sandy loam
11.) 9.59 - 10.68 m - clayey soil
12.) 10.68 - 11.18 m - fine sand loam
13.) 11.18 - 11.94 m - clayey soil
14.) 11.94 - 13.46 m - fine sand loam
15.) 13.46 - 14.46 m - brown clay.

This sandy-clayey plain has a slight tendency to elevation going toward south.

From South and South-East it borders with [illegible]

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